Sanofi Bio Industries Groundwater Monitoring
WA-002156-3 **OUT OF BUSINESS**
ON RESERVATION - NO JURISDICTION

4/29/93

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SBI
FLAVOR & FRUIT DIVISION
5661 BRANCH ROAD
WAPATO, WASHINGTON 98951
TEL: (509) 877-6111 - FAX: (509) 848-2259

sanofi BIO-INDUSTRIES

File: GW Monitoring

March 15, 1993

Mr. Bob Barwin
State of Washington
Department of Ecology
106 South 6th Ave.
Yakima, WA 98902-3387

Dear Bob:

Attached are the preliminary results of our March and Quarterly Testing. As you can see, many tests have been sent to an outside laboratory for analysis. These will be forwarded to you as they come in.

Regards,

Mark R. Meyer
Site Manager

cjc

Enclosure

MONITORING WELL TESTS
3-12-93

	#1	#2	#3	#4	#5
DEPTH (FT)	815.88	812.67	811.97	812.53	814.71
EC	256	620	285	242	259
TEMPERATURE	14.5	14.4	14.3	14.5	14.0
Na + PPM	15	30	12	11	11
FE 2+ PPM	0	0	0	0	0
Ca PPM	28	38	30	30	29
02	5.8	3.0	3.1	5.1	5.9
FECAL COLIFORM	(----)	(----)	(----)	(----)	(----)

****

THE FOLLOWING SENT TO OUTSIDE LABORATORY - RESULTS PENDING

NO3

TOTAL FE

COD

TDS

CHLORIDE

MAGNESIUM

POTASSIUM

ALKALINITY

SULFATE

TKN

ORTHO PHOSPHATE

TOC

HCO3

CaCO3

SANOFI BIO-INDUSTRIES, INC.
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October 25, 1993

Mr. Robert Raforth
Department of Ecology
106 South 6th Avenue
Yakima, WA 98902-3387

Dear Bob:

Attached are the Test Well Results from September and October.

Sincerely,

Mark R. Meyer
Site Manager

mk

Enclosure

DATE 9-30-93

MONITORING WELL TEST DATA
QUARTERLY SCHEDULE

	833.98 MW #1	830.07 MW #2	831.37 MW #3	829.43 MW #4	834.21 MW #5
STATIC WATER LEVEL	824.76	820.95	820.75	821.65	822.85
ph	7.10	7.10	7.00	7.20	7.20
CONDUCTIVITY	267	559	270	174	254
NITRATE	ND	ND	ND	ND	ND
TEMPERATURE	15.2	15.2	14.9	15.5	15.1
TOTAL IRON	ND	ND	ND	ND	ND (<.05mg)
DISSOLVED IRON (FE+2)	ND	ND	ND	ND	ND
DISSOLVED OXYGEN	6.9	2.3	4.4	6.7	6.7
TDS	226	412	208	160	209
CHLORIDE	6.45	61.70	8.50	11.9	6.65
CALCIUM	32.0	35.1	29.7	17.4	32.7
FECAL COLIFORM	ND	ND	ND	ND	ND
COD	11	6	10	7	13
MAGNESIUM	12.3	26.7	13.3	33.8	8.25
POTASSIUM	4.01	6.50	4.20	3.23	4.01
ALKALINITY	125	294	123	102	129
SULFATE	18.3	<1	18.6	11.1	15.8
TKN	0.33	0.38	0.58	0.53	0.57
ORTHO-PHOSPHATE	0.11	0.05	0.04	0.08	0.13
TOC	0.20	23.2	0.50	22.4	21.4
HCO3	152	354	150	125	157
CaCO3	0.3	<0.3	<0.3	<0.3	<0.3
SODIUM	17	22	19	9	14

DATE 10-21-93

MONITORING WELL TEST DATA
MONTHLY SCHEDULE

	833.98 MW #1	830.07 MW #2	831.37 MW #3	829.43 MW #4	834.21 MW #5
STATIC WATER LEVEL	823.61	819.79	819.47	820.30	820.49
ph	6.9	6.85	7.1	7.1	7.3
CONDUCTIVITY	254	410	255	175	250
NITRATE	ND	ND	ND	ND	ND
TEMPERATURE	14.8	15.2	15.2	15.0	15.0
TOTAL IRON (4.05 from)	ND	ND	ND	ND	ND
DISSOLVED IRON (FE+2)	ND	ND	ND	ND	ND
DISSOLVED OXYGEN	6.9	4.1	4.0	7.2	6.9
TDS	~~5.0~~	~~55.5~~	~~7.9~~	~~10.0~~	~~5.7~~
CHLORIDE	5.0	55.5	7.9	10.0	5.7
CALCIUM	32.2	41.7	30.0	19.2	35.4
FECAL COLIFORM	ND	ND	ND	ND	ND
COD	14	9	10	9	15
[illegible]					

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BIO-INDUSTRIES

October 5, 1993

Mr. Robert Raforth
Department of Ecology
106 South 6th Avenue
Yakima, WA 98902-3387

Dear Bob:

Attached are the August and September monitoring well results.

Sincerely,

Mark Meyer

Mark R. Meyer
Site Manager

mk

DATE 9-3-93

MONITORING WELL TEST DATA
MONTHLY SCHEDULE

	833.98 MW #1	830.07 MW #2	831.37 MW #3	829.43 MW #4	834.21 MW #5
STATIC WATER LEVEL	824.5	820.93	820.71	821.64	822.71
ph	6.90	7.05	7.00	6.95	6.95
CONDUCTIVITY	262	522	270	138	268
NITRATE	ND	ND	ND	ND	ND
TEMPERATURE	15.1	14.9	15.0	15.4	15.2
TOTAL IRON	ND	ND	ND	ND	ND
DISSOLVED IRON (FE+2)	ND	ND	ND	ND	ND
DISSOLVED OXYGEN	6.5	2.1	4.0	6.0	6.7
TDS					
CHLORIDE	9.2	65.7	8.70	4.4	8.5
CALCIUM	30.5	44.4	28.0	21.2	30.0
FECAL COLIFORM	ND	ND	ND	ND	ND
COD	11	10	12	20	17

OCT 7

SANOFI BIO-INDUSTRIES, INC.
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sanofi BIO-INDUSTRIES

May 13, 1993

Mr. Robert Raforth
Department of Ecology
106 South Sixth Avenue
Yakima, WA 98902-3387

Dear Bob:

Here are the Test Results that you requested.

Sincerely,

Mark R. Meyer

mk

Enclosure

DATE 3-31-93

MONITORING WELL TEST DATA
QUARTERLY SCHEDULE

	833.98 MW #1		830.07 MW #2		831.37 MW #3		829.43 MW #4		834.21 MW #5	
STATIC WATER LEVEL	19.56	(814.42)	18.63	(811.44)	20.48	(810.89)	17.46	(811.97)	20.67	(813.54)
ph	7.2		7.2		7.2		7.1		7.1	
CONDUCTIVITY	256		706		279		211		291	
NITRATE	ND		ND		ND		ND		ND	
TEMPERATURE	14.0		13.8		14.5		13.0		14.4	
TOTAL IRON	< 0.05		0.06		0.07		< .05		< .05	
DISSOLVED IRON (FE+2)	Ø		Ø		Ø		Ø		Ø	
DISSOLVED OXYGEN	5.5		3.1		3.0		3.1		4.1	
TDS	184		561		215		183		186	
CHLORIDE	5.40		103		10.8		5.35		7.72	
CALCIUM	31		49		25		34		35	
FECAL COLIFORM	Neg		Neg		Neg		Neg		Neg	
COD	2		12		18		35		14	
MAGNESIUM	13.6		34.8		10.1		10.1		10.3	
POTASSIUM	3.55		8.00		4.60		3.40		3.85	
ALKALINITY	116		318		136		118		114	
SULFATE	13.1		15.9		28.2		10.1		14.0	
TKN	0.88		0.94		0.36		0.62		0.76	
ORTHO-PHOSPHATE	0.10		0.05		0.02		0.09		0.11	
TOC	30.42		75.07		37.39		32.60		31.14	
HCO3	142		388		166		144		138	
CaCO3	0.2		0.2		0.2		0.2		0.2	

DATE 9-30-93

MONITORING WELL TEST DATA
QUARTERLY SCHEDULE

	833.98 MW #1	830.07 MW #2	831.37 MW #3	829.43 MW #4	834.21 MW #5
STATIC WATER LEVEL	824.76	820.95	820.75	821.65	822.85
ph	7.10	7.10	7.00	7.20	7.20
CONDUCTIVITY	267	559	270	174	254
NITRATE	ND	ND	ND	ND	ND
TEMPERATURE	15.2	15.2	14.9	15.5	15.1
TOTAL IRON	ND	ND	ND	ND	ND
DISSOLVED IRON (FE+2)	ND	ND.	ND	ND	ND
DISSOLVED OXYGEN	6.9	2.3	4.4	6.7	6.7
TDS					
CHLORIDE					
CALCIUM					
FECAL COLIFORM					
COD					
MAGNESIUM					
POTASSIUM					
ALKALINITY					
SULFATE					
TKN					
ORTHO-PHOSPHATE					
TOC					
HCO3					
CaCO3					
SODIUM					

Received Outside Lab From

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sanofi BIO-INDUSTRIES

August 24, 1993

Mr. Robert Rayforth
Central Regional Office
Department of Ecology
106 South Sixth Avenue
Yakima, WA 98902-3387

Dear Bob,

Attached are the monitoring well samples for Sanofi Bio-Industries for the month of July 1993.

If you have any questions please feel free to call.

Sincerely,

Mark R. Meyer

Mark R. Meyer
Site Manager
Sanofi Bio-Industries

DATE 7-23-93

MONITORING WELL TEST DATA
MONTHLY SCHEDULE

	833.98 MW #1	830.07 MW #2	831.37 MW #3	829.43 MW #4	834.21 MW #5
STATIC WATER LEVEL	822.28	818.82	818.72	820.13	820.82
ph	7.0	7.2	7.2	7.1	7.2
CONDUCTIVITY	255	601	266	125	262
NITRATE	ND	ND	ND	ND	ND
TEMPERATURE	14.5	15.0	15.0	15.6	15.2
TOTAL IRON	ND	ND	ND	ND	ND
DISSOLVED IRON (FE+2)	ND	ND	ND	ND	ND
DISSOLVED OXYGEN	7.0	3.2	4.6	6.9	7.2
TDS					
CHLORIDE	7.0	80.0	8.1	5.0	6.5
CALCIUM	35.2	42.0	25.7	19.3	32.4
FECAL COLIFORM	ND	ND	ND	ND	ND
COD	10	11	13	17	17
SODIUM	17	31	17	8	16

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BIO-INDUSTRIES

May 13, 1993

Mr. Robert Raforth
Department of Ecology
106 South Sixth Avenue
Yakima, WA 98902-3387

Dear Bob:

Here are the Test Results that you requested.

Sincerely,

Mark R. Meyer

mk

Enclosure

DATE 3-31-93

MONITORING WELL TEST DATA
QUARTERLY SCHEDULE

	833.98 MW #1	830.07 MW #2	831.37 MW #3	829.43 MW #4	834.21 MW #5
STATIC WATER LEVEL	19.56 (814.42)	18.63 (811.44)	20.48 (810.89)	17.46 (811.97)	20.67 (813.54)
ph	7.2	7.2	7.2	7.1	7.1
CONDUCTIVITY	256	706	279	211	291
NITRATE	ND	ND	ND	ND	ND
TEMPERATURE	14.0	13.8	14.5	13.0	14.4
TOTAL IRON	< 0.05	0.06	0.07	< .05	< .05
DISSOLVED IRON (FE+2)	Ø	Ø	Ø	Ø	Ø
DISSOLVED OXYGEN	5.5	3.1	3.0	3.1	4.1
TDS	184	561	215	183	186
CHLORIDE	5.40	103	10.8	5.35	7.72
CALCIUM	31	49	25	34	35
FECAL COLIFORM	Neg	Neg	Neg	Neg	Neg
COD	2	12	18	35	14
MAGNESIUM	13.6	34.8	10.1	10.1	10.3
POTASSIUM	3.55	8.00	4.60	3.40	3.85
ALKALINITY	116	318	136	118	114
SULFATE	13.1	15.9	28.2	10.1	14.0
TKN	0.88	0.94	0.36	0.62	0.76
ORTHO-PHOSPHATE	0.10	0.05	0.02	0.09	0.11
TOC	30.42	75.07	37.39	32.60	31.14
HCO3	142	388	166	144	138
CaCO3	0.2	0.2	0.2	0.2	0.2

DATE 4-22-93

MONITORING WELL TEST DATA
MONTHLY SCHEDULE

	833.98 MW #1	830.07 MW #2	831.37 MW #3	829.43 MW #4	834.21 MW #5
STATIC WATER LEVEL	813.30	810.11	808.92	810.54	812.42
ph	7.1	7.3	7.3	7.0	7.2
CONDUCTIVITY	270	710	284	220	265
NITRATE	ND	ND	ND	ND	ND
TEMPERATURE	14.5	14.8	14.4	14.9	15.0
TOTAL IRON	0	0	0	0	0
DISSOLVED IRON (FE+2)	0	0	0	0	0
DISSOLVED OXYGEN	6.1	2.9	3.1	5.4	5.9
TDS					
CHLORIDE					
CALCIUM	25	48	25	30	34
FECAL COLIFORM	Neg	Neg	Neg	Neg	Neg
COD	8	11	11	29	10

DATE 2-26-93

MONITORING WELL TEST DATA
MONTHLY SCHEDULE

	833.98 MW #1	830.07 MW #2	831.37 MW #3	829.43 MW #4	834.21 MW #5
STATIC WATER LEVEL	815.88	812.67	811.97	812.53	814.71
ph	7.2	7.1	7.3	7.1	7.1
CONDUCTIVITY	256	620	285	242	259
NITRATE	ND	ND	ND	ND	ND
TEMPERATURE	14.5	14.4	14.3	14.5	14.0
TOTAL IRON	ND	ND	ND	ND	ND
DISSOLVED IRON (FE+2)	ND	ND	ND	ND	ND
DISSOLVED OXYGEN	5.8	3.0	3.1	5.1	5.9
TDS					
CHLORIDE					
CALCIUM	28	38	30	30	29
FECAL COLIFORM	ND	ND	ND	ND	ND
COD	11	12	14	35	12

DATE 1-14-93

MONITORING WELL TEST DATA
MONTHLY SCHEDULE

	833.98 MW #1	830.07 MW #2	831.37 MW #3	829.43 MW #4	834.21 MW #5
STATIC WATER LEVEL	817.66	814.05	813.47	814.39	816.56
ph	7.3	7.2	7.1	7.3	7.3
CONDUCTIVITY	258	568	252	230	261
NITRATE					
TEMPERATURE	14.5	14.0	14.4	14.6	14.5
TOTAL IRON	ND	ND	ND	ND	ND
DISSOLVED IRON (FE+2)	ND	ND	ND	ND	ND
DISSOLVED OXYGEN	5.9	3.0	2.1	5.0	5.9
TDS					
CHLORIDE					
CALCIUM	28	38	30	30	29
FECAL COLIFORM	ND	ND	ND	ND	ND
COD	10	10	15	30	12

SANOFI BIO-INDUSTRIES
WATER QUALITY MONITORING

Date/ Param	833.98 Well #1	830.07 Well #2	831.37 Well #3	829.43 Well #4	834.21 Well #5	825.0 Drain #3	Lagoon	829.87 FP Well #1	827.59 Gravel Pit
Date	10-30		818.10	819.01					
W.L.	11.75 (822.23)	11.60 (818.47)	13.27	10.42	13.75 (820.46)				
EC	238	498	298	190	282		2250 cond.	285 conduct.	
Temp	15.2	15.7	15.2	15.5	15.7				
NA	14.5	32.7	13.8	9.1	10.0		600 Na^+	15.0 ppm Na	
FE2+	∅	∅ 2 ppm	∅	∅	∅		47 ppm Ca^{++}		
Ca	27 ppm	54 ppm	27 ppm	27 ppm	27 ppm				
O2	5.7	1.0	1.6	4.8	5.4				
Date	11-11-92								
W.L.									
EC	265	629	270	201	260				
Temp	15.0	15.1	15.0	15.3	15.1				
NA	14.8	30.1	14.0	15.1					
FE2+	∅	∅	∅	∅	∅				
Ca	27	52	32	27	20				
O2	6.6	1.0	1.8	4.4	6.1				
Date	12-16-92	(815.85)	(815.30)	(816.17)	(817.78)				
W.L.	14.44 (819.44)	14.22	16.07	13.26	16.43				
EC	257	630	265	228	264				
Temp	15.0	14.3	14.5	14.3	14.7				
NA	15.0	20.0 total	15.0	9.0	12.0				
FE2+	∅	2 ppm $\phi_{Fe^{+2}}$	∅	∅	∅				
Ca	27 ppm	48	30	29	21				
O2	6.0	1.0	1.1	6.1	6.1				

COD: ~~[illegible]~~ 8.0 6.0 6.0

Date	SWL	pH	ECond	Temp	Fe2+	DO	Na	Ca
3/23/92	814.87	7.1	254	15.3	0		15.6	
3/25	814.75							
3/26		6.9	287	15.1	0			
3/31	814.3	7	260	15.5	0	4.5		
4/3	814.27	7.1	270	15.4	0.1		14	96
4/9	814.46							
4/14	814.91	7	260	15.4	0.1		16.5	34
4/22	815.9	6.9	254	14.3	0.1	5.5	11	
5/1			225	14.4	0		13	4
6/3			254		0			
7/6			288	15.1	0	8.2	17	29
8/18			291	15.5	0	8		
9/17			289	15.1	0	6	15	5
3/12/93	815.88		256	14.5	0	5.8	15	28

MW-2

Date	SWL	pH	ECond	Temp	Fe2+	DO	Na	Ca
3/23/92								
3/25	811.58							
3/26		7.1	994	15.3	0			
3/31	811.25	7	780	16.1	0.1	0.6		
4/3								
4/9	811.68							
4/14	812	7.1	490	15.2	0.1		16	55
4/22	812.55	7.2	502	13.7	0.1	2		
5/1			487	14.5	0		25	8
6/3			500		0			
7/6			499	15	0	2.8	15	45
8/18			588	15.5	0	1		
9/17			525	15	0	2.1	37	8
3/12/93	812.67		620	14.4	0	3	30	38

MW-3

Date	SWL	pH	ECond	Temp	Fe2+	DO	Na	Ca
3/23/92	811.62	7.1	340	15.1	1		15.7	
3/25	811.54							
3/26		7	438	15.1	0.8			
3/31	811.23	7.1	385	15.7	2	0.3		
4/3	811.37	7.2	359	14.7	2			
4/9	812.01							
4/14	812.25	7	254	14.2	1.5		16.5	20.7
4/22	812.67	7	331	13.4	1	1.2	17	
5/1			299	14.4	0		17	5
6/3			304		1			
7/6			304	14.9	0	2.5	17.5	18
8/18			288	15.2	0	2		
9/17			295	15	0	7	16	5
3/12/93	811.97		285	14.3	0	3.1	12	30

Date	SWL	pH	ECond	Temp	Fe2+	DO	Na	Ca
	MW-4							
Date	SWL	pH	ECond	Temp	Fe2+	DO	Na	Ca
3/23/92								
3/25	811.8							
3/26								
3/31								
4/3								
4/9	812.1							
4/14								
4/22	812.24							
5/1								
6/3			170		0			
7/6			186	15.5	0	6.4	9	10
8/18			195	15.8	0	4.2		
9/17			188	15.5	0	5.7	7	5
3/12/93	812.53		242	14.5	0	5.1	11	30

Date	MW-5 SWL	pH	ECond	Temp	Fe2+	DO	Na	Ca
3/23/92								
3/25	813.68							
3/26		7.1	308		0			
3/31								
4/3								
4/9	813.56							
4/14								
4/22	814.77							
5/1								
6/3								
7/6								
8/18								
9/17								
3/12/93	814.71		259	14	0	5.9	11	29

State of Washington Department of Ecology
Manchester Environmental Laboratory
7411 Beach Dr. East Port Orchard WA. 98366

Data Review
April 13, 1993

Project: **Sanofi Bio Ground Water**

Samples: 108085 108090

Laboratory: Weyerhaeuser Analytical and Testing Services 11189

By: Stuart Magoon

Case Summary

These water samples were received at the Manchester Environmental Laboratory on March 2, 1993. The samples were sent to Weyerhaeuser Analytical and Testing Services for analysis.

Since there is no official environmental method for the analysis of sugars and organic acids, Weyerhaeuser used a procedure that they had developed for internal purposes.

These analyses were reviewed for qualitative and quantitative accuracy, validity, and usefulness.

The method blank for sugars demonstrated that the system was free of contamination. Unfortunately the analyst did not perform a method blank for the organic acids analysis. However, since results for sample 108090 were all non-detect, this analysis in effect has demonstrated that wide spread contamination was not a problem. The target analytes detected in sample 108085 are most likely native to the sample and not the result of contamination.

These results are acceptable for use. Note that the final reports have been modified to be consistent with Manchester Environmental Laboratory's reporting conventions; eg. "< 16" has been replaced with "16 U". Results are expressed in micrograms per milliliter (parts per million).

Weyerhaeuser

32901 Weyerhaeuser Way South
Federal Way, Washington 98003
Analytical Chemistry Laboratories
Tacoma, Washington 98477
Tel (206) 924 6872
Fax (206) 924 6654

SDG NARRATIVE

WEYERHAEUSER (WEYER)
ANALYTICAL AND TESTING SERVICES

Case Number: 11189
SDG Number: 108085
Project Name: SANOFI BGW

Samples from this case (11189) were received on 3/5/93. This case was comprised of water samples for Volatile Organic Acids and Sugars. The requested analyses were as follows:

SAMPLE ID	MATRIX	ANALYSIS REQUESTED
108085	WATER	Acids; Sugars
108090	WATER	Acids; Sugars

Several anomalies existed with this sample set that are listed below. The anomalies are broken up into categories for ease of explanation.

1. Organic Acids

   a) Sample 108090 contained peaks which eluted near the retention times of some of the organic acids. Standard addition was used to verify that the compounds detected were not target organic acids.

2. Sugars

   a) The quantitation limits reported for sugars in sample 108085 are elevated due to the high concentration of matrix interferences.

   b) Sucrose and maltose are not separated by this method.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Richard G Bogar — 4/1/93

Richard G. Bogar
Chromatography Team Leader

Date

Please feel free to contact me with any questions concerning this data report. I can be reached at (206) 924-6521.

Sincerely,

Richard G Bogar

Richard G. Bogar
Chromatography Team Leader
Weyerhaeuser Analytical & Testing Services

WEYERHAEUSER TECHNOLOGY CENTER
Analytical Laboratories
Tacoma, Washington

Service Request 11189

REPORT

WASHINGTON STATE DEPARTMENT OF ECOLOGY - SANOFI BGW

Selected organic acids were analyzed by HPLC on a Biorad HPX-87H column working in the ion exclusion mode and maintained at 60C. The solvent was 0.01M H_2SO_4. Detection was by UV absorbance at 200nm. After thorough mixing, the samples were filtered through a 0.45u filter and analyzed as is. Peak identities were confirmed by spiking samples with known amounts of standards. The confirmed peaks in the chromatogram labeled 05247A Vial 7 had areas which conformed to the expected total of sample area plus standard area.

The detection limits are in the 10 ppm range. However, a fourfold dilution of this low standard (final concentration about 3 ppm) is readily visible on the chromatogram labeled 05247A Vial 8.

Approved M. K. Koester Date 12MAR93 Notebook

M. K. Koester

Page Number

Service Request # 1110.

Analyst Martha M. Koester Date 3-12-93

Martha Koester

Sample #	5247			5248		
Sample ID	108085			108090		
Chromatogram I.D.	05247A Vial 5			5248A Vial 6		
	RT minutes	Peak Area	Conc. ug/mL	RT minutes	Peak Area	Conc. ug/mL
Formic Acid	10.36	1038963	180 *	nd		~~<12~~ 12 u
Acetic Acid	11.35	1235574	320 *	nd		~~<13~~ 13 u
Proionic Acid	13.54	105670	290 *	nd		~~<14~~ 14 u
Butyric Acid	16.88	724802	230 *	nd		~~<13~~ 13 u
Valeric Acid	nd		~~<14~~ 14 u	nd		~~<14~~ 14 u
Caproic Acid	nd		~~<16~~ 16 u	nd		~~<16~~ 16 u

* Indicates the compound identity was confirmed by standard addition.
For standard additions, see Chromatograms 05278 Vial 7 and 05248B Vial 8

WEYERHAEUSER TECHNOLOGY CENTER
Analytical Laboratories
Tacoma, Washington

Service Request 11189

REPORT

WASHINGTON STATE DEPARTMENT OF ECOLOGY - SANOFI BGW

Selected sugars were analyzed by HPLC on two ion exclusion columns connected in series, a Biorad HPX-87C column maintained at 85C followed by a Biorad HPX-65A maintained at 45C. The solvent was Millipore water. Detection was by differential refractive index. After thorough mixing, the samples were filtered through a 0.45u filter and analyzed as is.

Peak identities were checked by spiking samples with known amounts of standards. No sugars were found above the indicated detection limits. An apparent identity of one of the sample peaks with sucrose was disconfirmed by repeating the analysis on the single column HPX-87C, taking advantage of the different selectivities of the two systems.

These sugar columns are designed for biological systems, and it is usually assumed that other biological materials such as proteins and fatty acids will not be extracted. If the sample matrix is reasonably clean (as in sample 108090), reasonable detection limits can be obtained with non-biological material. Since detection by refractive index is not at all specific, a dirtier sample such as 108085 cannot yield reasonable detection limits unless a cleanup method specific to the matrix can be designed.

Approved Martha Koester Date 23MAR93 Notebook

M. K. Koester Page Number

Service Request #11189

Analyst Martha Koester (signature) Date 3-23-93

Martha Koester

δm

	Sample # 5247			Sample # 5248			method blank
Sample ID	108085			108090			
Chromatogram I.D.	05247D Vial 5			5248D Vial 6			
	RT minutes	Peak Height	Conc. ug/mL	RT minutes	Peak Height	Conc. ug/mL	Conc. ug/ml
Sucrose*	nd	~250000	δm ~~≤280~~ 280 u	nd		δm ~~<16~~ 16 u	16 u
Glucose	nd	~300000	~~≤230~~ 230 u	nd		~~<16~~ 16 u	16 u
Mannose	nd	~150000	~~≤140~~ 140 u	nd		~~<16~~ 16 u	16 u
Fructose	nd	~150000	~~≤130~~ 130 u	nd		~~<24~~ 24 u	24 u

The high detection limits for sample 5247 reflect the amounts that can be detected in the presence of interfering peaks. Peak heights are an approximate estimate of the minimum peak height necessary to quantitate the indicated sugar.

*An interfering peak coeluted with sucrose in the two column system, but NOT in the one column system.
For standard additions, see Chromatograms 0527E Vial 7 and 05248E Vial 8

State of Washington Department of Ecology
Manchester Environmental Laboratory
7411 Beach Dr. East Port Orchard WA. 98366

Data Review
April 13, 1993

Project: **Sanofi Bio Ground Water**

Samples: 108085 108090

Laboratory: Weyerhaeuser Analytical and Testing Services 11189

By: Stuart Magoon

Case Summary

These water samples were received at the Manchester Environmental Laboratory on March 2, 1993. The samples were sent to Weyerhaeuser Analytical and Testing Services for analysis.

Since there is no official environmental method for the analysis of sugars and organic acids, Weyerhaeuser used a procedure that they had developed for internal purposes.

These analyses were reviewed for qualitative and quantitative accuracy, validity, and usefulness.

The method blank for sugars demonstrated that the system was free of contamination. Unfortunately the analyst did not perform a method blank for the organic acids analysis. However, since results for sample 108090 were all non-detect, this analysis in effect has demonstrated that wide spread contamination was not a problem. The target analytes detected in sample 108085 are most likely native to the sample and not the result of contamination.

These results are acceptable for use. Note that the final reports have been modified to be consistent with Manchester Environmental Laboratory's reporting conventions; eg. "< 16" has been replaced with "16 U". Results are expressed in micrograms per milliliter (parts per million).

Weyerhaeuser

32901 Weyerhaeuser Way South
Federal Way, Washington 98003
Analytical Chemistry Laboratories
Tacoma, Washington 98477
Tel (206) 924 6872
Fax (206) 924 6654

SDG NARRATIVE

WEYERHAEUSER (WEYER)
ANALYTICAL AND TESTING SERVICES

Case Number: 11189
SDG Number: 108085
Project Name: SANOFI BGW

Samples from this case (11189) were received on 3/5/93. This case was comprised of water samples for Volatile Organic Acids and Sugars. The requested analyses were as follows:

SAMPLE ID	MATRIX	ANALYSIS REQUESTED
108085	WATER	Acids; Sugars
108090	WATER	Acids; Sugars

Several anomalies existed with this sample set that are listed below. The anomalies are broken up into categories for ease of explanation.

1. Organic Acids

   a) Sample 108090 contained peaks which eluted near the retention times of some of the organic acids. Standard addition was used to verify that the compounds detected were not target organic acids.

2. Sugars

   a) The quantitation limits reported for sugars in sample 108085 are elevated due to the high concentration of matrix interferences.

   b) Sucrose and maltose are not separated by this method.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Richard G Bogar 4/1/93

Richard G. Bogar
Chromatography Team Leader

Date

Please feel free to contact me with any questions concerning this data report. I can be reached at (206) 924-6521.

Sincerely,

Richard G Bogar

Richard G. Bogar
Chromatography Team Leader
Weyerhaeuser Analytical & Testing Services

WEYERHAEUSER TECHNOLOGY CENTER
Analytical Laboratories
Tacoma, Washington

Service Request 11189

REPORT

WASHINGTON STATE DEPARTMENT OF ECOLOGY - SANOFI BGW

Selected organic acids were analyzed by HPLC on a Biorad HPX-87H column working in the ion exclusion mode and maintained at 60C. The solvent was 0.01M H2S04. Detection was by UV absorbance at 200nm. After thorough mixing, the samples were filtered through a 0.45u filter and analyzed as is. Peak identities were confirmed by spiking samples with known amounts of standards. The confirmed peaks in the chromatogram labeled 05247A Vial 7 had areas which conformed to the expected total of sample area plus standard area.

The detection limits are in the 10 ppm range. However, a fourfold dilution of this low standard (final concentration about 3 ppm) is readily visible on the chromatogram labeled 05247A Vial 8.

Approved M. K. Koester Date 12MAR93 Notebook

M. K. Koester Page Number

Service Request # 11189

Analyst Martha Koester Date 3-12-93

Martha Koester

Sample #	5247			5248		
Sample ID	108085			108090		
Chromatogram I.D.	05247A Vial 5			5248A Vial 6		
	RT minutes	Peak Area	Conc. ug/mL	RT minutes	Peak Area	Conc. ug/mL
Formic Acid	10.36	1038963	180 *	nd		~~< 12~~ 12 u
Acetic Acid	11.35	1235574	320 *	nd		~~< 13~~ 13 u
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Valeric Acid	nd		~~< 14~~ 14 u	nd		~~< 14~~ 14 u
Caproic Acid	nd		~~< 16~~ 16 u	nd		~~< 16~~ 16 u

* Indicates the compound identity was confirmed by standard addition.
For standard additions, see Chromatograms 0527B Vial 7 and 05248B Vial 8

WEYERHAEUSER TECHNOLOGY CENTER
Analytical Laboratories
Tacoma, Washington

Service Request 11189

REPORT

WASHINGTON STATE DEPARTMENT OF ECOLOGY - SANOFI BGW

Selected sugars were analyzed by HPLC on two ion exclusion columns connected in series, a Biorad HPX-87C column maintained at 85C followed by a Biorad HPX-65A maintained at 45C. The solvent was Millipore water. Detection was by differential refractive index. After thorough mixing, the samples were filtered through a 0.45u filter and analyzed as is.

Peak identities were checked by spiking samples with known amounts of standards. No sugars were found above the indicated detection limits. An apparent identity of one of the sample peaks with sucrose was disconfirmed by repeating the analysis on the single column HPX-87C, taking advantage of the different selectivities of the two systems.

These sugar columns are designed for biological systems, and it is usually assumed that other biological materials such as proteins and fatty acids will not be extracted. If the sample matrix is reasonably clean (as in sample 108090), reasonable detection limits can be obtained with non-biological material. Since detection by refractive index is not at all specific, a dirtier sample such as 108085 cannot yield reasonable detection limits unless a cleanup method specific to the matrix can be designed.

Approved Martha Koester Date 23MAR93 Notebook

M. K. Koester Page Number

Service Request # 11189

Analyst Martha Koester Date 3-23-93

Sample #	5247			5248				
Sample ID	108085			108090				
Chromatogram I.D.	05247D Vial 5			5248D Vial 6				
	RT minutes	Peak Height	Conc. ug/mL	RT minutes	Peak Height	Conc. ug/mL		
Sucrose*	nd	~250000	~~≤280~~ 280 4	nd		~~<16~~ 16 4		16 4
Glucose	nd	~300000	~~≤230~~ 230 4	nd		~~<16~~ 16 4		16 4
Mannose	nd	~150000	~~≤140~~ 140 4	nd		~~<16~~ 16 4		16 4
Fructose	nd	~150000	~~≤130~~ 130 4	nd		~~<24~~ 24 4		24 4

SM

method blank

Conc. ug/ml

The high detection limits for sample 5247 reflect the amounts that can be detected in the presence of interfering peaks.
Peak heights are an approximate estimate of the minimum peak height necessary to quantitate the indicated sugar.

*An interfering peak coeluted with sucrose in the two column system, but NOT in the one column system.
For standard additions, see Chromatograms 0527E Vial 7 and 05248E Vial 8

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
106 South 6th Ave. • Yakima, Washington 98902-3387 • (509) 575-2490

June 30, 1993

Mr. Mark Meyer
Sanofi Bio-Industries
Headquarters Building
5661 Branch Road
Wapato, Washington 98951

Dear Mr. Meyer:

RE: Review and Approval of Plans and Specifications of the Sanofi Bio-Industries Process Wastewater Lagoons and Sprayfields.

In accordance with RCW 90.48.110 and WAC 173-240 of the Department of Ecology, the subject Plans and Specifications for the Sanofi Bio-Industries Process Wastewater Systems have been reviewed and are approved with the following special provisions:

1. It shall be demonstrated to the Department of Ecology that Aire-O2 actually manufactures a 15 or 25 hp aerator that will deliver 2.5 lbs of oxygen per horse power hour. If Aire-O2 claims a lesser clean water oxygen delivery for their 15 and 25 hp aerators then this specification should be used to replace the specification shown on page 11-7.

2. The excavation of the lagoons below the seasonal or occasional high water level of the groundwater at Sanofi's site requires an operations plan to prevent floating of the liner. A preliminary Operations and Maintenance manual appendix or chapter covering high groundwater levels shall be submitted to the Department of Ecology by August 1, 1993.

3. The Geotechnical Report shows that less than three feet of soil is present in the area of the lagoon. The engineering report assumes that three feet of soil are present in the sprayfield. The engineer shall determine the extent of the deficiency identified in the Geotechnical Report and whether this condition adversely impacts the ability of the existing sprayfield to provide treatment of the applied wastewater.

Upon completion, and prior to the use of the above project or portions thereof, the attached Declaration of Construction of Water Pollution control Facilities certificate must be completed by the responsible professional engineer for the project and returned to this department.

Nothing in this approval shall be construed as satisfying other applicable federal, state, or local statues, ordinances, or regulations. In the interest of time this review has not been completed with a checklist review of the 1985 Sewage Works Design Criteria of the Washington Department of Ecology. The engineers on the project are aware of these Sewage Works Criteria, and failure to document variances or to specify facilities in compliance with the Sewage Works Criteria will be the sole responsibility of the project engineers.

For additional information, please feel free to contact Kim H. Sherwood, PE, at 575-2491.

Sincerely,

Robert F. Barwin
Section Manager
Water Quality Program

RFB:KHS:ch
930667.wq

Enclosure: Declaration of Construction

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
106 South 6th Ave. • Yakima, Washington 98902-3387 • (509) 575-2490

July 7, 1993

CERTIFIED MAIL
P 868 668 837

Mr. Mark Meyer
Sanofi Bio-Industries, Inc.
5661 Branch Road
Wapato, WA 98951

Dear Mr. Meyer:

RE: WARNING LETTER

Warning is hereby given that the Department of Ecology's (Department) records indicate that Sanofi Bio-Industries has failed to meet the Design and Construction Schedule for the Sanofi Bio-Industries Lagoon Treatment and Sprayfield Systems (Attachment A) as required under Temporary State Waste Discharge Permit No. ST-9168 effective January 19, 1993. Telephone communication occurred concerning failure to meet the schedule on January 20, February 18, March 24, April 2, April 5, April 25, and April 30, 1993 by Kim Sherwood of the Department. At these times he spoke with Gray & Osborne, Inc., Sanofi Bio's contract engineer, and stated that continued fruit processing depended on lagoon project completion by summer 1993. This message was also given in person in a meeting between Kim Sherwood of the Department and Ken Mitchell and Tom Coleman of Gray & Osborne, Inc. on April 22, 1993. According to the terms of Temporary State Waste Discharge Permit No. ST-9168, all project work was to have been completed by June 1, 1993. As of this date, no project work has been done.

The Engineering Plans and Specifications, due February 14, 1993, were submitted to the Department on May 14, 1993 and approved by the Department on June 30, 1993. It is now required that a new schedule for completion of sprinkler system and project lagoon be submitted to the Department within five (5) days of receipt of this Warning Letter.

Failure to respond by this date will result in formal enforcement action. Be advised that under the Revised Code of Washington (RCW) 90.48.080 it is unlawful to discharge polluting matter into state waters. With continued discharge of wastes into state waters, the Department may seek remedies including, but not

limited to, court action to prevent further operation of the facility. Persons willfully violating this law are potentially subject to criminal prosecution. Additionally, every person who violates waste discharge permits and the provisions of RCW 90.48.080 are liable for civil penalties in an amount of up to ten thousand dollars a day for every such violation.

Questions regarding this letter should be directed to Rick Frye at (509) 575-2821.

Sincerely,

Joan Snyder

Joan Snyder
Enforcement
Water Quality Program

JS:ch
930720.wq

RECOMMENDATION FOR ENFORCEMENT ACTION

PROGRAM: Water Quality DATE: 6/30/93

Joan Snyder (509) 454-7864

Full Name of Investigator Public Telephone Number

RECOMMEND ENFORCEMENT ACTION BE TAKEN AGAINST:

I. Sanofi-Bio-Industries Inc
Name: Company, Individual, etc.

Additional Potentially Liable Parties (PLPs) (Please circle one) Yes No

5661 Branch Rd. Wapato Yakima 98951

Address City County Zip Code

II. TYPE OF ACTION: Penalty NOV Order Amendment Other WARNING

III. FOR:

A. Chapter 18.104 RCW, violation of Water Well Construction Act.
[ ] 1. Specific paragraph RCW/WAC_____
[ ] 2. Failure to submit a well report for a well drilled for

_____
Name of Well Owner

_____
Address Permit No.

B. Chapter 70.94 RCW, violation of Clean Air Act.
[ ] Specific paragraph RCW/WAC_____

C. Chapter 86.16, violation of Flood Control Laws.
[ ] Specific paragraph RCW/WAC_____

D. (Reference RCW 43.27A), violation of Water Resource Laws, 90 RCW.
[ ] Specific paragraph RCW/WAC_____

E. Chapter 90.48 RCW, Water Quality violations/notices:
[ ] 90.48.080, unlawful discharge of wastes into public waters
[ ] 90.48.120, Water Quality Regulatory Notice and Order
[ ] 90.48.120(2), modification of Water Quality criteria
[X] 90.48.180, noncompliance with waste discharge permit
(Please include copy of pg 1 and the page of the permit containing the condition violated.)
[ ] 90.48.350, intentional or negligent discharge of oil into state waters
[ ] 90.48.450, agricultural discharges
Has consideration been given to change of land use? _____

F. Chapter 70.105, violation of Hazardous Waste Laws.
[ ] Specific paragraph RCW/WAC_____

G. [ ] Other_____

IV. PERMIT #'s _____ (NPDES) _____ (Haz Waste ID) _____ (Haz Waste Cleanup) ST-9168 (Ground/Surface Water Permit)

V. The violation occurred at _____ (Time) _____ (Date)

VI. Location of incident/activity Wapato (City or S,T,R) Yakima (County)

Name of watercourse involved_____ Class_____
Point Source Yes No WBS#_____

VII. Narrative of incident/situation: (Use separate page or memo if necessary)
Sands Bio has not lived up to the terms of state waste permit ST-9161 in which a schedule for lagoon system and sprinkler system engineering and construction was given. Sands Bio has been told numerous times about this deficiency.

VIII. Physical evidence obtained: Samples_____ Pictures_____ Other_____

IX. Names and addresses of witnesses Kim Sherwood WDOE, CRO

X. Recommended penalty OR regulatory action to be taken_____
_____ ESCALATED PENALTY: Yes No

Enclosures:
Lab Report No._____ Investigated by: Joan Snyder

Pictures_____ Title: Enforcement

ENDORSEMENT

We have taken the following actions to resolve this problem:

_____

_____

_____

_____ (Environmental Quality Super or Section Head) _____ (Dist. Supervisor (if appropriate)) _____ (Dist. Engineer (if appropriate))

Recommend enforcement action be taken as proposed.

_____ (Regional Director or Division Supervisor) _____ (Date)

SAMPLE FORM S-31

CITY OF YAKIMA WASTEWATER TREATMENT PLANT
REQUEST FOR LABORATORY TESTS

Date of Request: 2/27/93

Date of Sample: 2/27/93

Sample ID: Sanifi

Tests Requested By: Kim Sherwood

Samples Received By: Karina Erickson

Type of Preservation Used (If Any): —

LABORATORY TESTS REQUESTED

	TEST VALUE	TECHNICIAN
BOD'S		
COD		
SS		
TS		
VS		
pH	Counts / volume	K. Erickson
FECAL Well #2	0 / 200 ml	
OTHER " #3	0 / 200 ml	
" #4	0 / 200 ml	
" #5	0 / 200 ml	
Diluted Lagoon 10/100 ml		
10 ml	TNTC	
25 ml	TNTC	
50 ml	TNTC	

Confederated Tribes and Bands
of the Yakima Indian Nation

Established by the
Treaty of June 9, 1855

May 8, 1992

Mr. Craig Paulsen
U.S. Environmental Protection Agency
1200 Sixth Avenue, WD-132
Seattle, WA 98101

Dear Craig:

Attached please find the data collected during March and April at the Sanofi Bio-Industries site. For your reference I have also attached a site plan map showing the locations of the wells.

I have yet to discuss these results with anyone but will provide you a few comments on my initial concerns.

1). Data Reported: No chemical data is reported for Well 4 and data for Well 5 was only reported once. I assume that the lack of reported data indicates that all wells have not been tested at the same frequency. Field measurements should be taken at every well each time the water level is measured.

2). Conductivity: Conductivity data for Well 2, that directly across the street from the Hanson well, suggests that we have a problem. While the conductivity of the "upgradient" well (Well 1) is between 254 and 287 mhos/cm, that at Well 2 ranged from 490 to 994 mhos/cm. The conductivity measured in Well 1 is similar to what I would expect to find in this area but even the lowest readings at Well 2 indicate that the water is being influenced by something.

The fact that shortly after irrigation water started to move through the system the conductivity dramatically reduced in Well 2 but not in the other wells may also be significant. I may indicate that a plume which had migrated to the southwest corner of the property has now moved past this well and thus off-site. I suggest that these readings be watched to see if this trend continues or if, following increased use of the ponds this summer, the conductivity once again rises. We should also becollecting information from the Hanson well to see what conductivity levels are present in that well and how they compare to Well 2.

I would suggest that we have further tests run on the high conductivity water to determine what constituents are responsible for the elevated conductivity.

3). Ferrous Iron: Well 3, located between the plant and the Brownlee residence, shows a much lower conductivity level but continually shows the highest ferrous iron concentration. I

will have to get a better idea of the significance of various numerical levels of this element before I can make many substantial comments on this matter.

It should also be noted that ferrous iron began to appear in Well 1 after the irrigation season began. This may be an indication that the material applied in the area of that well over the winter is moving into the ground water. If this is the case, it may not be a good representation of upgradient conditions.

4). Dissolved Oxygen: Although only measured twice, the dissolved oxygen content reported indicate deteriorated conditions in both Well 2 and Well 3, especially at the March 31 testing. The oxygen in the shallow ground water seems to be appreciably diminished over the length of the Sanofi property, thus indicating that activities associated with land-use activities are affecting the processes to a depth at least down to the ground water table.

As I discuss these results with Kim Sherwood and others I will keep you posted on our thoughts. I hope that you will also be able to provide input upon review of these data.

For your information, Dan Brownlee has subpoenaed Sanofi bio-Industries to appear in Tribal Court on May 21. This is in connection with his personal suit against Sanofi.

Sincerely,

Jannine Jennings
Environmental Protection Program
Yakima Indian Nation

cc: YIN Office of Legal Counsel
Kim Sherwood, WA Dept. of Ecology

SBI
FLAVOR & FRUIT DIVISION
5661 BRANCH ROAD
WAPATO, WASHINGTON 98951
TEL: (509) 877-6111 – FAX: (509) 848-2259

sanofi BIO-INDUSTRIES

May 6, 1992

Ms. Jannine Jennings
Environmental Protection Program
Confederated Tribes and Bands
of the Yakima Indian Nation
P. O. Box 151, Fort Road
Toppenish, WA 98948

REFERENCE: Sanofi Bio-Industries
Waterwater Disposal Facilities
Interim Monitoring at Sanofi Bio-Industries Site
G & O No. 90022

Dear Ms. Jennings:

The attached is the data collected from our On Site Monitoring Program. Please let me know if there are any questions on this data.

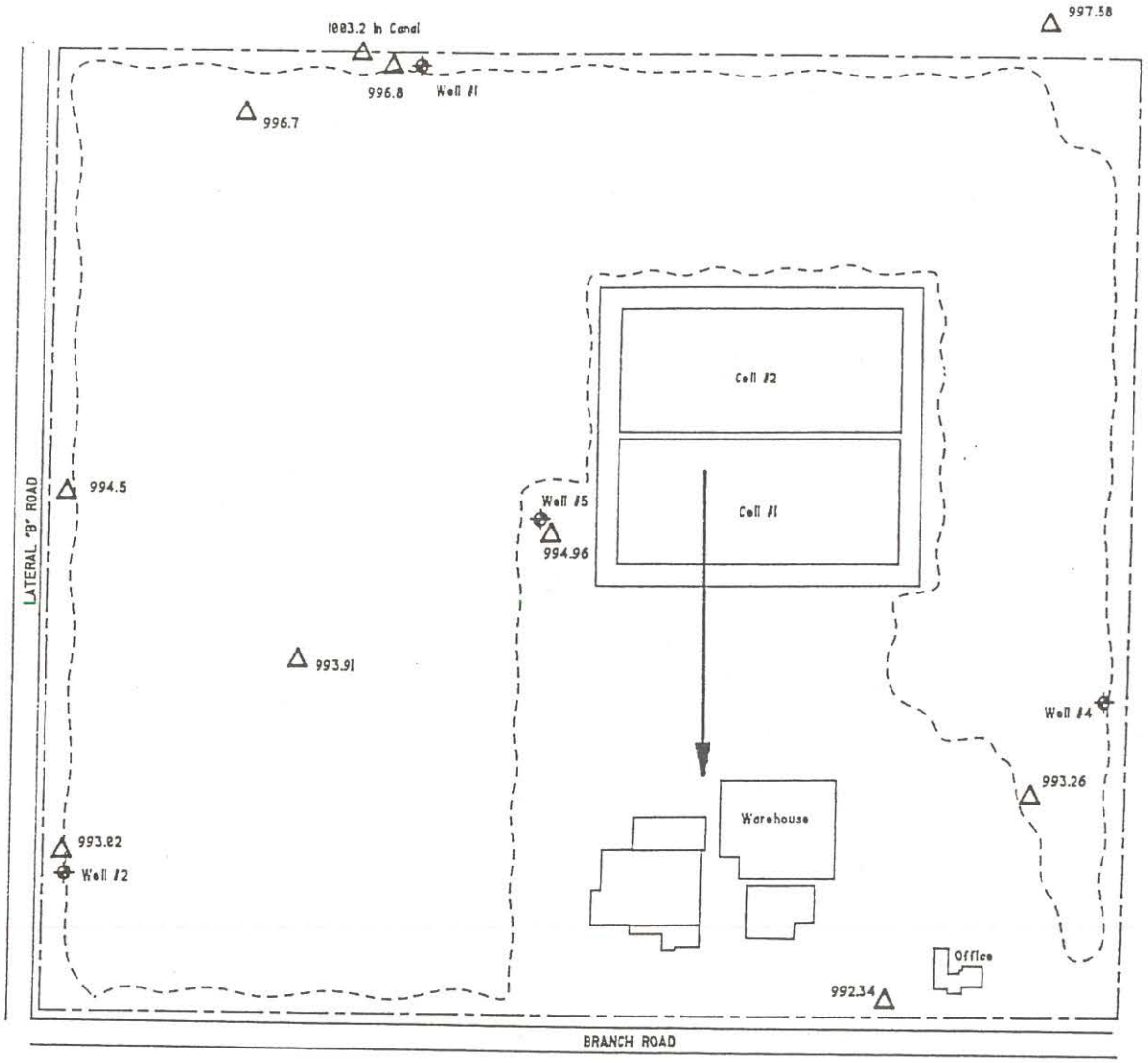
Respectfully,

Mark R. Meyer

MM/mk

Enclosure

ATE	WELL	DEPTH	PH	MHOS/CM EC	DEGREE CELSIUS	FERROUS IRON PPM	DISSOLVED OXYGEN PPM	SODIUM PPM	CALCIUM PPM
AR 23	1	814.87	7.1	264	15.3	0		15.6	
	3	811.62	7.1	340	15.1	1		15.7	
AR 25	1	814.75							
	2	811.58							
	3	811.54							
	4	811.8							
	5	813.68							
	PW	811.53							
AR 26	1		6.9	287	15.1	0			
	2		7.1	994	15.3	0			
	3		7	433	15.1	0.8			
	5		7.1	308		0			
AR 31	1	814.3	7	260	15.5	0	4.5		
	2	811.25	7	780	16.1	0.1	0.6		
	3	811.23	7.1	385	15.7	2	0.3		
PR 3	1	814.27	7.1	270	15.4	0.1		14	96
	3	811.37	7.2	359	14.7	2			
	IRR.DTCH		8.4	130	17.5	0		7	48
R 9	1	814.46							
	2	811.68							
	3	812.01							
	4	812.1							
	5	813.56							
R 14	1	814.91	7	260	15.4	0.1		16.5	54
	2	812	7.1	490	15.2	0.1		16	55
	3	812.25	7	254	14.2	1.5		16.5	20.7
	DRAIN 3		8.9	110	16.4	0		6	13.7
R 22	1	815.9	6.9	254	14.3	0.1	5.5	11	
	2	812.55	7.2	502	13.7	0.1	2		
	3	812.67	7	331	13.4	1	1.2	17	
	4	812.24							
	5	814.77							
	IRRDTCH		8.7	98	15	0		11	
	DRAIN3		9	93	15	0		4	



DRAWING NOT TO SCALE

LEGEND

- 992.24 — Ground Water Surface Elevation on 8-15-91*
- Approximate Limit of Proposed Spray Irrigation Area
- Approximate Site Boundary
- Well #3 — Proposed Monitoring Well Location
- Approximate Ground Water Flow Direction

*Based on test pit data provided by Gray & Osborne, and assumed benchmark of 1000 feet at corner of Branch Road and Lateral "B" Road.

HONG WEST & ASSOCIATES

SANOFI BIO-INDUSTRIES HYDROGEOLOGIC ASSESSMENT

SITE PLAN MAP

PROJECT NO. 92024 | FIGURE NO. 2

SBI
FLAVOR & FRUIT DIVISION
5661 BRANCH ROAD
WAPATO, WASHINGTON 98951
TEL: (509) 877-6111 – FAX: (509) 848-2259

PHD
W
File

sanofi BIO-INDUSTRIES

May 1, 1992

Mr. Robert F. Barwin
Section Manager
Water Quality Program
Central Regional Office
Department of Ecology
106 South Sixth Avenue
Yakima, WA 98902-3387

REFERENCE: Sanofi Bio-Industries
Waterwater Disposal Facilities
Interim Monitoring at Sanofi Bio-Industries Site
G & O No. 90022

Dear Mr. Barwin:

The attached is the data collected from our On Site Monitoring Program. Please let me know if there are any questions on this data.

This data was collected in accordance with our letter dated March 19, 1992.

Respectfully,

Mark R. Myer

Mark R. Myer

MM/mk

Enclosure

C: Gray & Osborne, Inc.
O'Brien & Gere
Department of Ecology
Kim Sherwood
Steven R. Huber
Sanofi Bio-Industries
Bob Allen
Karen Linehan
Perkins & Coie
Catherine Tucker

DATE	WELL	DEPTH	PH	MHOS/CM EC	DEGREE CELSIUS	FERROUS IRON PPM	DISSOLVED OXYGEN PPM	SODIUM PPM	CALCIUM PPM
MAR 23	1	814.87	7.1	254	15.3	0		15.6	
	3	811.62	7.1	340	15.1	1		15.7	
MAR 25	1	814.75							
	2	811.58							
	3	811.54							
	4	811.8							
	5	813.68							
	FW	811.53							
MAR 26	1		6.9	287	15.1	3			
	2		7.1	994	15.3	9			
	3		7	438	15.1	0.8			
	5		7.1	308		0			
MAR 31	1	814.3	7	260	15.5	0	4.5		
	2	811.25	7	780	16.1	0.1	0.6		
	3	811.23	7.1	385	15.7	2	0.3		
APR 3	1	814.27	7.1	270	15.4	0.1		14	96
	3	811.37	7.2	359	14.7	2			
	IRR.DTCH		8.4	130	17.5	0		7	48
APR 9	1	814.46							
	2	811.68							
	3	812.01							
	4	812.1							
	5	813.56							
APR 14	1	814.91	7	260	15.4	0.1		16.5	34
	2	812	7.1	490	15.2	0.1		16	55
	3	812.25	7	254	14.2	1.5		16.5	20.7
	DRAIN 3		8.9	110	19.4	0		6	13.7
APR 22	1	815.9	6.9	254	14.3	0.1	5.5	11	
	2	812.55	7.2	502	13.7	0.1	2		
	3	812.67	7	331	13.4	1	1.2	17	
	4	812.24							
	5	814.77							
	IRRDTCH		8.7	98	15	0		11	
	DRAIN3		9	93	15	0		4	

Program Code
Project Code F1574
Project/Name Sanofi Bio Late Winter Groundwater

SAMPLE DATA & ANALYSIS REQUIRED

■ Enforcement/Custody ☐ C...l
☐ Possible Toxic/Hazardous Notes

SAMPLING | FIELD STATION IDENTIFICATION | LAB SAMPLE NUMBER | Matrix Code | Source Code | No. of Containers | General Chemistry (Turbidity, pH, Conductivity, Total Hardness, Chloride, TS, TSS, TNVS, TNVSS, TSS, % Solids, Nutrients (4), Ammonia, Nitrate-Nitrite, Total Phosphorous, Ortho-Phosphate, BOD/5 Day, COD Chem Oxy Demand) | Biology (Fecal Coliform Bacteria, Total Coliform Bacteria, Enterococcus, Fish Bioassay) | Organic Chem. (Base/Neutrals/Acids, Volatile Organics, Pesticides/PCB's, PCB's Only, Purgeable Halocarbons, Herbicides, Hydrocarbon Analysis, Phenolics (AAP), Oil & Grease) | METALS (P.P. Metals, EP Tox Metals, Specific List: Total, ☐ Recoverable, ☐ Totals, ☐ Dissolved)

Date Mo	Date Da	Time Hr	Time Mn	Field Station Identification	Lab Wk	Lab Seq	Matrix Code	Source Code	No. of Containers
				Miss Late Well #4					
~~02~~	~~26~~	~~15~~	~~08~~	~~SFBWELL1~~			~~10~~	~~23~~	~~07~~
02	26	14	00	SFBWELL2			10	23	01
02	26	15	08	SFBWELL3			10	23	01
02	26	16	17	SFBWELL4			10	23	01
02	26	15	49	SFBWELL5			10	23	01
02	26	15	27	SFBLAGN			10	37	01

...t Officer Kim H. Sherwood
...ler(s) Kim H. Sherwood
...der Kim H. Sherwood
2/26/93

Chain Of Custody Record

Relinquished By:	Received By:	Yr	Mo	Da	Hr	Mn	Seal I.D.	Condition of Seals	Comments
Kim H. Sherwood	Karina Erickson	93	02	27	10	00		Well #3 has two seals. Others are O.K.	
									RECEIVED MAR 1 1993